



CHRIST COMMUNITY  
DAYTONA BEACH

June 2018

**Volume Levels and Hearing Safety at  
Christ Community Church**

Thank you for your questions and comments regarding Christ Community Church's choices regarding audio volume levels during our weekend worship services. We receive similar questions and comments from other concerned individuals on a regular basis, and we hope this document can answer these questions and address any concerns you might have.

**National Safety Standards –**

In the United States, there are two government bodies that have published safety standards pertaining to sound exposure in the workplace—the Occupational Safety and Health Administration (OSHA)<sup>1</sup> and the National Institute of Occupational Safety and Health (NIOSH)<sup>2</sup>. For the duration of a typical worship service at Christ Community Church (20 minutes), OSHA permits exposure at a time-weighted average (TWA) of 115dBSPL, or decibels of sound pressure level, and NIOSH permits exposure at a TWA of 98dBSPL. For an extended time of worship, such as on a special worship night where the music might last up to an hour, the OSHA and NIOSH permissible time-weighted average levels are 105dBSPL and 94dBSPL, respectively.

**Application at Christ Community Church –**

At Christ Community, we take the safety of our congregation very seriously. We believe that even though we can run at these levels safely, it doesn't mean that we should. At every weekend worship service, levels are significantly lower than either of these two standards. The time-weighted average levels in our weekend services typically vary between 83dBSPL and 86dBSPL, as measured from the audio mixing position with an integrating sound pressure level meter. While the volume level experienced in the general seating area will be slightly higher (approximately 2-4dB higher, depending on seating position—please refer to the seating chart on page 3), at no point do these levels come anywhere close to the NIOSH permissible level of 98dBSPL TWA.

Please also note that these levels are time-weighted averages, not instantaneous measurements. Time-weighted averages are more accurate for measuring true noise exposure, and require specialized equipment to properly measure. At Christ Community, we use a combination of a calibrated measurement microphone and specialized software to log our sound pressure levels during every service, which provides a level of accuracy that falls within NIOSH's highest class

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<sup>1</sup> Occupational Safety and Health Administration, "OSHA Technical Manual," Section III, Chapter 5, *OSHA Technical Manual*, United States Department of Labor, 15 Aug. 2013. [www.osha.gov/dts/osta/otm/new\\_noise/index.html](http://www.osha.gov/dts/osta/otm/new_noise/index.html).

<sup>2</sup> National Institute for Occupational Safety and Health, "Criteria for a Recommended Standard: Occupational Noise Exposure (Revised Criteria 1998)." *Criteria for a Recommended Standard: Occupational Noise Exposure (Revised Criteria 1998)*, US Department of Health and Human Services, June 1998. [www.cdc.gov/niosh/docs/98-126/pdfs/98-126.pdf](http://www.cdc.gov/niosh/docs/98-126/pdfs/98-126.pdf).

of measurement devices<sup>3</sup>. This allows us to closely monitor the safety of our congregation and our volunteer sound operators, while providing a level of consistency from week to week. If you are interested in reviewing our logs, they can be made available upon request.

### **Comfort and Preference –**

While we are committed to the safety of all attendees, we also realize that even within the realm of safety there are varied levels of preference and comfort. What one worshipper experiences as an appropriate and comfortable level might be uncomfortable for another.

We are also aware that there are certain hearing conditions that might make sounds physically uncomfortable for some. If this is your experience, we are very sorry for your discomfort. Please know that this discomfort does not necessarily mean that your hearing is being damaged. Your ability to fully participate in worship is important to us. If you find yourself regularly uncomfortable with our established sound levels, please refer to the seating chart on page 3 to see if there might be a more appropriate seating position that can provide some reduction of level and allow you to participate more comfortably.

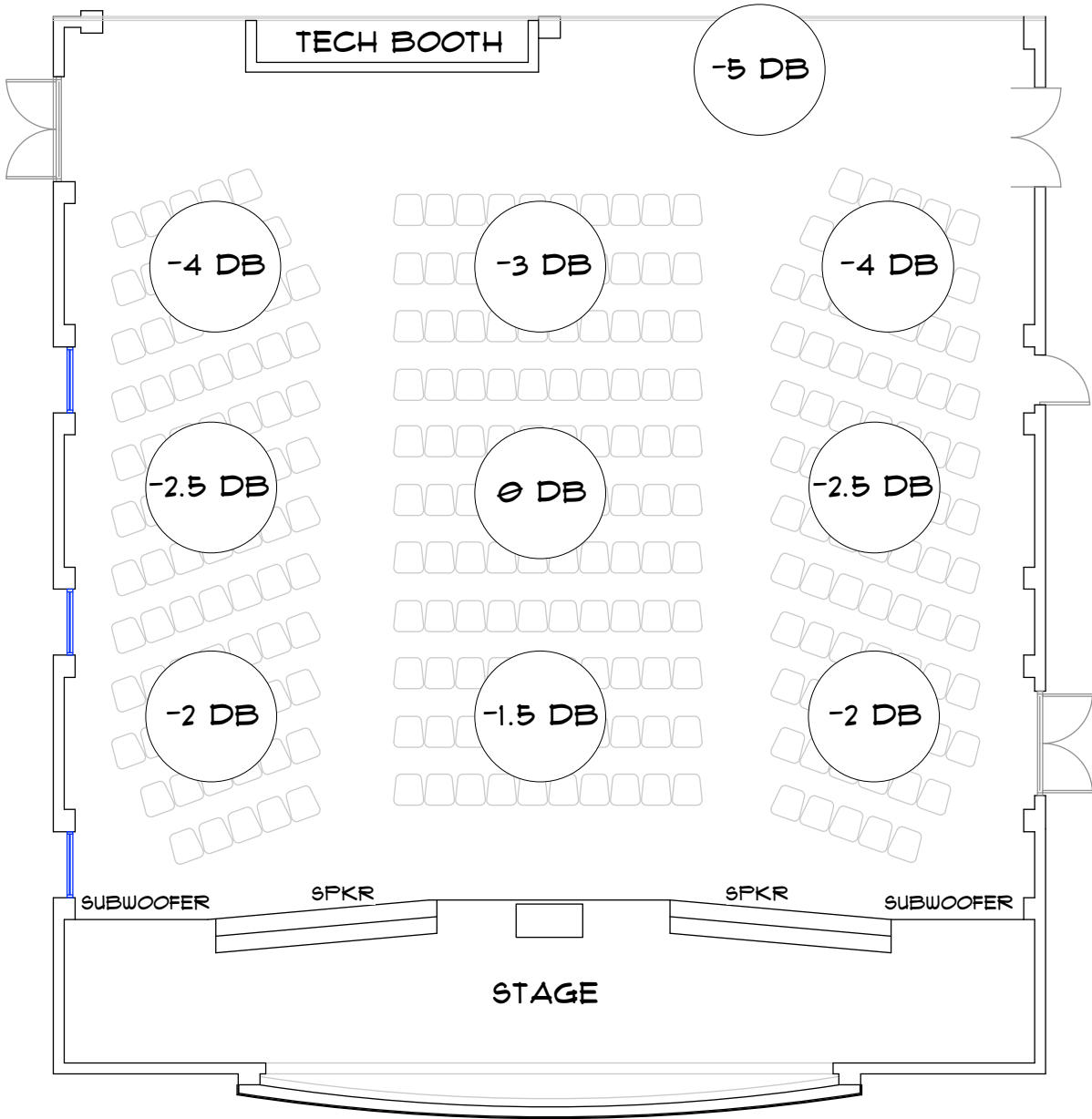
The technical director and sound crew are responsible for ensuring that levels do not exceed safety standards. Within those guidelines, however, it is ultimately the pastoral leadership who choose the appropriate level for a given service. Should you have further concerns about a particular service you will be attending, please contact the worship pastor or executive pastor.

### **In Conclusion –**

Thank you again for your comments and questions about our sound levels. We appreciate your courage in bringing your thoughts to our attention, and we hope all of your concerns have been addressed here. If you have any more questions at all, please feel free to contact the church technical director.

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<sup>3</sup> Kardous, Chucri A., and Peter B. Shaw. "Evaluation of Smartphone Sound Measurement Applications (Apps) Using External Microphones—A Follow-up Study." *The Journal of the Acoustical Society of America*, vol. 140, no. 4, Oct. 2016, doi:10.11211.4964639.



**Seating Chart.** Relative levels experienced at various seating positions in the sanctuary. The loudest portion of the room is in the center section labeled “0dB,” with reduced levels labeled throughout the seating area.